Multifunctionality of pebbles used in the Upper Paleolithic: an ethnographic approach.

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MULTIFUNCTIONALITY OF PEBBLES
USED IN THE UPPER PALEOLITHC:
An Ethnographic Approach

Text, Photos and Illustrations By Sophie de Beaune

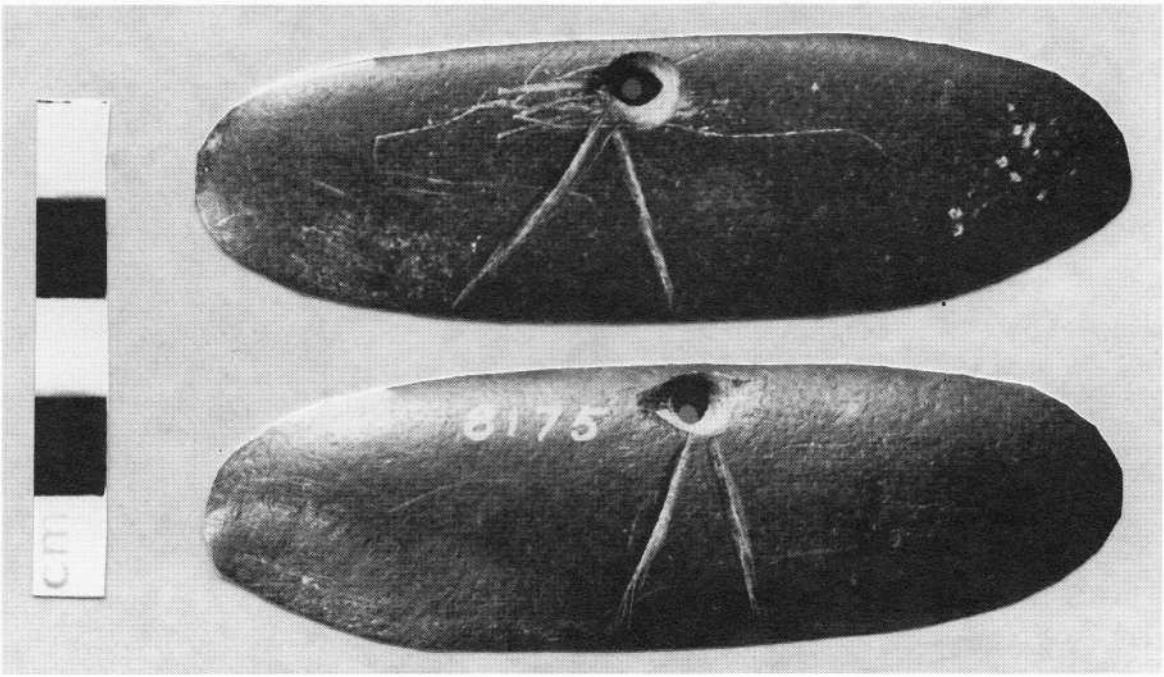

Fig. 1 Grotte de l'Eglise at Excideuil. M.A.N. coll. Capitan. Magdaleinian V. Perforated schist pebble. Traces of impact on the end opposite the perforation and part of the surface attests to use as a hammer and an anvil. Used surfaces indicate probable use as a grinder or crusher. 15.2 x 5.2x4cm.

Numerous blocks, pebbles, and thin slabs used in the Paleolithic have a function that is enigmatic. To clarify the function of these remains, it is appropriate to take several different approaches in parallel. A first approach, an archaeological one, consists of studying the characteristics of the archaeological documents (as they are properly so called), possibly rounded out by physicochemical analyses. A second approach, an experimental one, allows one to understand the process of formation of the traces of use visible on the archaeological pieces and thereby to narrow down the number of hypotheses considered (see, e.g., de Beaune and White 1993). As a third approach, one can perhaps turn to the ethnographic data. It is with this specific type of approach that we will be concerned here. One returns at last to the archaeological documents with one or several hypotheses [that are] functionally likely, and one then analyzes their probability in terms of the archaeological context (localization, association with other remains, type of occupation, spatial and chronological distribution, etc.). Even if it is not always possible to determine with absolute certainty the use of such and such implement, these stages allow one to class all the functional possibilities according to an increasing degree of probability.

There exists a whole category of pebbles that are found at almost all the sites of the Upper Paleolithic, albeit in restricted numbers, and which are characterized by the multiplicity and variety of their traces of use. This article will discuss the hypotheses that can be formulated about them and the information that certain ethnographic data

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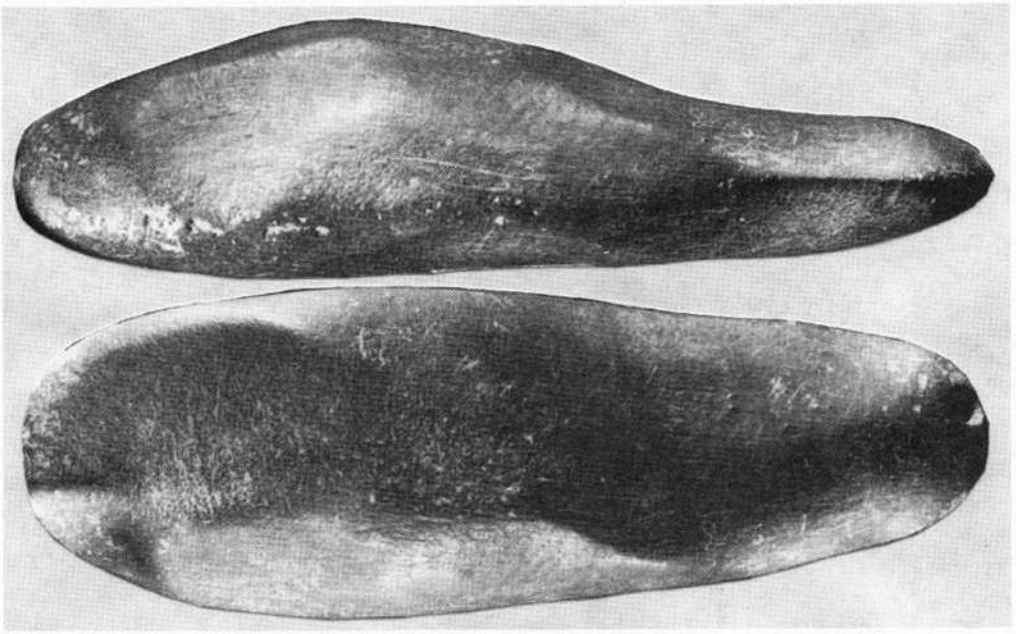

Fig. 2 Rock shelter of La Madeleine. M.A.N. coll. Lartet and Christy, No. inv. 8175. Magdalenian . Schist pebble showing on the obverse, the engraved head of an animal and a chevron; on the reverse the same chevron sign and possibly a dorsal line. 9.2x3cm.

can bring to bear [on the question].

The most common archaeological case is that of the pebbles presenting traces of percussion on one end, or on the two that are generally considered hammers. This interpretation seems justified by the data gathered by modern experimental flintknappers. Nevertheless, it is not impossible that the same scars could perhaps be obtained by percussion cast on hard raw materials other than stone, as I have observed experimentally.

It also happens that these pebbles carry traces of percussion on their surfaces or on longitudinal ridges, or else traces of wear by rubbing or abrasion on their ends, surfaces, or ridges. The origin of these traces is then more difficult to recognize, and it seems not to be a question of scars [that are] linked with the flintknapping. One can then consider all sorts of activities of cast percussion for the traces of pecking, [or] for steady percussion for the traces of wear. Finally, the shiny or glossy look [that is] sometimes visible on the worn surfaces is generally attributed to contact with a supple solid, such as hide or leather.

I have therefore proposed a typological classification of these pebbles (de Beaune 1989a). What matters here is the fact that these pebbles very often bear several types of traces, which sometimes are even superimposed [on one another]. It is a question then of pebbles that have had several usages, whether simultaneously or not. Numerous cases are possible. For example, one observes traces of impact fairly well on the tip and the surfaces; one can then suppose that the pebble has served indiscriminately during a single piece of work either on its end or on its surface, in active use, to peck, or to hammer. Sometimes, in addition to traces of impact visible in the center of surfaces, one can ascertain that the pebble has been completely hammered on its entire circumference. This may be a case of traces of management intended to regularize its contour, or else traces of use. In still other cases, facets worn by rubbing are associated with traces of impact on one part of the surface. These multifunctional pebbles are sometimes perforated, which suggests that one was hardly ever separated from them. For example, a composite tool from the Grotte de l'Eglise at Excideuil had active use, as a hammer at the end opposite the perforation, and as a grinder as indicated by several worn facets; and a passive use as an anvil, as attested by several surfaces [that show] traces of impact (**Fig. 1**).

The pebbles sometimes carry a decoration that seems independent of the technical function (de Beaune 1989b, 1989c). This is the case with a pendant from La Madeleine which has manifestly played [both] an aesthetic role and a functional role, but perhaps not at the same time. It bears several engraved features and traces of use, whose superimposition allows one to retrace its history. Someone first engraved the head of an animal on the obverse and a feature possibly representing a dorsal line on the reverse. Then the pebble was perforated, the perforation interrupting the features engraved on both faces. A chevron was then engraved on each face, starting from the perforation. Finally, the pebble was used on one of its ends, in cast percussion on the obverse and steady percussion on the reverse. The strokes engraved as a chevron on the reverse are lightly blunted as a consequence of the pebble's use as a smoothing tool (**Fig. 2**).

A stay in a Tuareg camp in the region of Agadez (Niger) allowed me to observe the different uses that one can make of a single pebble, very close to certain pebbles found in Paleolithic contexts.

This quartz pebble shows traces of pecking and crushing

Fig. 4 Tuareg woman using the pebble to polish hides.

on its two ends, the length of its longitudinal ridges, and in the center of one of its surfaces. The two facets of the opposite surface were produced by wear. It is spotted with numerous black traces: charcoal at one of its ends, coloring one of the faces [that are] polished with wear, and on the other end, finally, traces of pulp from the fruit *Balanites aegyptiaca* on the plano-convex surface (**Fig. 3**).

This pebble is intended above all by its owner for the polishing of hides, which over the long run has brought about the formation of two large worn surfaces that carry traces of colors (indigo or another, unidentified color) used in the corking of the hide (**Fig. 4**). I have also seen another woman use it as a support for crushing the oily pulp of the fruit *Balanities aegyptiaca* with her fingers. In this way she obtained a black cream, with which she coated the feet of a child suffering from burns. The crushing was carried out on the plano-convex surface, and the pulp of the fruit is well preserved, especially in the craggy areas due to the earlier pecking (**Fig. 5**).

Afterwards I questioned the owner of the pebble to learn about the other uses that one could hypothesize from the traces of pecking visible on the ends, surfaces, and ridges. She explains that the traces of percussion visible on the ends appeared during the breaking of sugar loaves and the crushing of various medicinal herbs; in the latter case, one generally uses a wooden mortar turned upside-down as a passive surface. For the traces of percussion visible on the largest surface, she begins by attributing them to the children, who sometimes play with her pebble (**Fig. 6**). She adds, however, that she sometimes uses the pebble on this surface as a hammer to emboss leather, with an iron burin serving as a medium. Later, I see her husband use the stone on an upside-down mortar for grinding charcoal. He holds the pebble in two hands and presses on it, together with a light hammer-tap, in a back and forth movement (**Fig. 7**). He indicates that one can, in the same

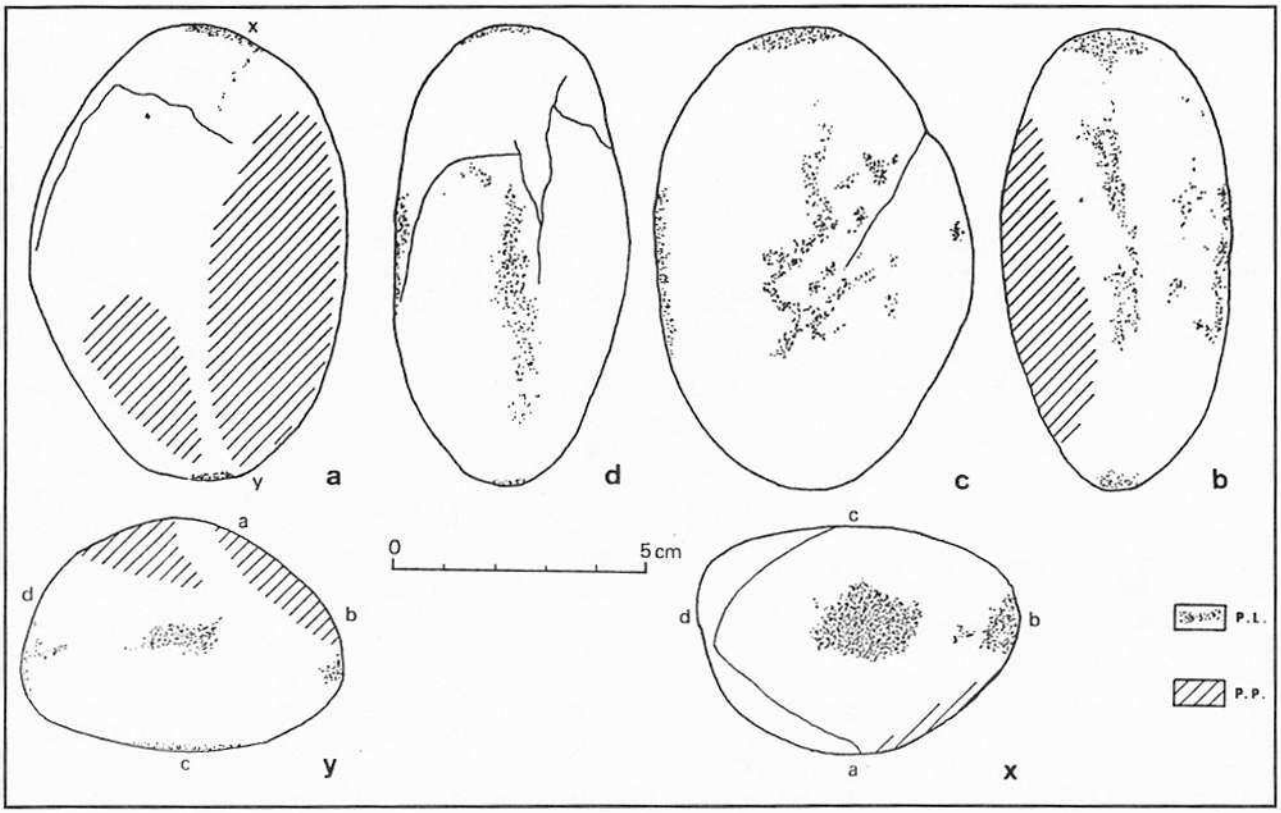

Fig. 3 Quartz pebble used in a Tuareg camp in the Agadez region (Niger).

Fig. 5 Tuareg woman using the same pebble as a support for crushing the oily fruit of Balanites aegyptiaca.

way, use this pebble for grinding kohl. This woman owns two stones of this type, both of quartz, and is never without them—which explains the quantity and variety of traces observed.

This pebble having been seen among the blacksmiths, certain of its uses are specific to them (the working of leather, the crushing of charcoal). But other Tuaregs, not blacksmiths, also own such pebbles, which can have another uses—for example, that of giving the woven cords of doum palm (*Hyphaene thebaica*), which are used to tie up camels, their definitive look. The cord is hammered with the pebble used on its surfaces, while another stone (bulkier and with a convex surface) serves as an anvil (Casajus 1987).

Thus one sees how each specific type of mark corresponds to each use of this pebble. It is linked to several activities—domestic, medical, craft, even games and it is used principally by women, but also accessorily by men, and even by children.

The multifunctional character of this pebble seemed interesting to present here, inasmuch as this characteristic has already been noticed for certain implements used by Australian aborigines (de Beaune 1989a). If the typological classification of pebbles used in the Paleolithic that I have presented elsewhere remains valid in theory, we must not forget that we may, in a large number of cases, by dealing with multifunctional objects. Just as, for specialists in flint, there exist scraper-burins, so one can imagine here the existence of grinder-smoothing tool, hammer-anvils, and so on. Moreover, if these pebbles have probably had several uses, their passive or active character should not be as marked as it might seem in theory. In fact, for objects of slight dimensions, as is the case here, which therefore have a mobile and portable character, one can envisage a mobile, active usage (as a hammer or smooting tool, for example) and a passive usage with the object being held immobile in the hollow of the hand.

One sees therefore that the multifunctional character of these Paleolithic implements increases the difficulty of interpreting their traces of use, and that recourse to data of an ethnographic nature can bring a not-insignificant bonus of information--or at least a number of original hypotheses.

Fig. 6 Tuareg girl playing with the same pebble.

Fig. 7 Tuareg blacksmith grinding charcoal on a wooden mortar turned upside-down.

LETTERS TO THE EDITOR

Dear Folks at BPT:

I loved Tom Elpel's Metaphor piece (BPT #8, p. 95). It completely expresses what it's all about. As a park naturalist, one of the notions we have to deal with constantly is that nature is separate from people. They come to the park and ask where the nature trail is, so they can see nature in the nature preserve, as if we have locked it away. When deer are forced from their homes by subdivisions, people want us to move them back to the wilderness to be 'born free' or something, they don't realize they took the only space on earth those deer had (we once spent mucho bucks feeding 27 deer to the local mountain lions), so they might as well eat the deer themselves and get it over with (I am happy to do this for them of course). It becomes particularly ironic when we are outraged over the hunting of whales by Eskimos only because we have depleted the resource ourselves. How do we relate to the folks who want to ban fur coats? There is a strong under-current of discontent in the civilized world around me, people are looking for a base in reality that is non-materialistic and feels good. We call it primitive technology, but its really basic technology, human living skills for the long run.

Due to timing and translation problems, the bibliography for Sophie de Beaune's article ***The Multifunctionality of Pebbles*** (BPT #8) was not included with the article.

Beaune, S. A. de

1989a ***Essaid'une classification typologique des galets et plaquettes utilises au Paleolithique*** *[Attempt at typological classification of pebbles and thin slabs used in the paleolithic]. Gallia Prehistorire, 31, 1989, 27-64.*

1989b ***Fonction et decor de certains ustensiles paleolithique en pierre*** *[Function and decoration of certain paleolithic stone implements]. L'Anthroplogie, 93, 2 1989, 547-584.*

1989c ***Un ustensile en pierre decore a usage plurifonctionel provenant de Laussel (Dordogne)*** *[A multifunctional stone implement from Laussel (Dordogne)]. Bull. de la Soc. preh. Ariege-Pyrenees, XLIV, 1989, 193-202.*

Beaune, S. A. de and White, R.

1993 *Ice Age lamps*. ***Scientific American,*** *March, Vol. 266, No.3, 108-113.*

Casajus, D.

1987 *Crafts and ceremonies: the indian in tuareg society. In:* ***A parna Rao, ed., The other Nomads. peripatetic minorities in cross-cultural perspective.*** *Bohlau Verlag. Koln, Wien, 1987, 291-310.*

In the "Fire Watchers" article on cattails (BPT #8, p. 11) the author describes cooking the male flower spikes like corn on the cob. The female spike can also be cooked and eaten the same way. It tastes a little like green beans. I avoid the male spike as I am allergic to the pollen and I get a sore throat from them. (My first wild meal, in 1970, was of boiled green cattails and day lily pods.) The runners (rhizomes) of the cattail, which the author describes as a source of flour, are even better baked or roasted in the coals of the fire, or in a pit oven. As flour they have the flavor (?) of corn starch, baked they taste like skinny (stringy) sweet potatoes.

More notes on Fire Making: a) you should use only the upper end of the cattail stalk, the bottom doesn't seem to work. The upper end works, but only on less dense hearth boards (I have used willow root, I hear Jim Riggs uses clematis), and may collapse under the pressure of drilling. I modify my technique to use more speed and less pressure, but still the drill collapses eventually. b) add to Dicks list Big-leafed Maple (*Acer madrophylum*) along with its relative, Box Elder (*Acer negundo*). It works well for drills if you use a basal sucker sprout, which will often be ideal drill size. Branches are not often long and straight enough, and don't work as well. c) Buckeye sprouts for drills are not common, but are worth looking for as they make excellent drills.

Norm Kidder
Coyote Hills Regional Park,
Fremont, CA

Roy Brown was requesting articles on natural dyes in BPT #8 in the Letter to the Editor section. There are many excellent books - check with a library or request books or articles through local inter-library loan service. Some books to begin exploring and enjoying are:

1. A Weaver's Garden (1987) Reta Buchanan. Interweave Press, Loveland, CO. Start with this book if possible. It includes not only chapters on dyes from plants, but also plant fibers for spinning and stuffing, soap plants for cleaning textiles, fragrant plants to scent and protect textiles, plant materials used to make textile tools and other information and resources.

2. A Spinning and Dying the Natural Way (1974) Ruth Castino. Van Nostrand Reinhold Company, New York. A simple beginning book about an elementary school's adventure with learning the art of spinning (begins with sheep shearing , washing the wool) and dying.

3. From the Brooklyn Botanic Garden Record, 1964, Vol. 20, No. 3, Handbook on Dye Plants and Dyeing. Vol. 46, No. 2, Summer 1990, Dyes From Nature, Handbook #124.